



Press Release
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Patients, Scientists Agree: Automated Red Blood Cell Exchange Enhances Quality of Life in Sickle Cell Disease Patients
Recent peer-reviewed study supports what patients shared with their own voices: Automated red blood cell exchange improves the lives of people struggling with sickle cell disease.

Lakewood, CO – November 21, 2024 – Pain. It haunts patients with sickle cell disease (SCD). They live with the looming threat of acute pain crises that could land them in the hospital — where they can struggle to find relief.

“A sickle cell disease pain crisis is indescribable. It takes your breath, it takes everything,” comments Bola Jibodu, a Sickle Cell Warrior from the UK.

Especially after a major SCD drug was recently withdrawn from the market [1], patients will be looking for other options to prevent pain and other dangerous complications from a disease that robs them of so much.

Thankfully, another therapeutic avenue already exists — automated red blood cell exchange (aRBCX), where the problematic sickled blood cells are removed and replaced with healthy donor cells. A team from Terumo Blood and Cell Technologies (Terumo BCT) recently completed a meta-analysis of retrospective data comparing the efficacy of different transfusion modalities used historically in SCD. A meta-analysis refers to a statistical method where researchers combine results from multiple studies that all used retrospective data (meaning they looked back at previously collected data) to analyze a particular research question, providing a more comprehensive picture compared to analyzing each individual study alone.

The meta-analysis completed by the Terumo BCT researchers examined over two decades of research documenting the efficacy of various SCD treatments and demonstrated that aRBCX consistently enhances the quality of life of patients with SCD [2].

Rona Wiggins knows this firsthand. Before she started aRBCX in the U.S. more than 20 years ago, “There wasn’t anything that was working for me. I would have pain in my joints, fatigue and jaundice.” By receiving regular aRBCX procedures, she says “I don’t have to worry about pain crises. I’m not as fatigued. It has afforded me to have a good quality of life. I am definitely living well with sickle cell.”

The analysis highlights aRBCX as a proven therapy for managing SCD complications, leading to shorter hospital stays, reduced procedure times and fewer pain-related hospitalizations.

“Hospital used to be my second home,” says Bola. “I could be talking to you and then go straight into crisis, just that minute. You live every day not knowing what’s going to happen.”

Terumo BCT makes the Spectra Optia™ Apheresis System, a platform used to collect and remove sickled cells from the blood of patients with SCD. The company advocates globally for patients with physicians, governments and NGOs to improve the lives of people suffering from SCD as well as different patient populations. For example, earlier this year, a Terumo BCT-supported Delphi panel leveraged international experts to generate consensus on SCD complications and pregnancy. The result was a published consensus of recommendations for SCD complications due to pregnancy, including guidelines for whether and when to consider transfusion or aRBCX [3].

“As gene therapies and drug treatments target permanent cures for sickle cell disease, red blood cell exchange remains a high-impact treatment to improve quality of life for Sickle Cell Warriors around the globe,” said Antoinette Gawin, President and CEO of Terumo BCT. “Exchange therapies remain a mainstay to avoid disease complications, helping these warriors live their lives. We continue partnering with patient advocacy and policy groups to expand access to this common therapy.”

Meta-analysis of retrospective study findings:

- **aRBCX benefits:** The results suggest that aRBCX, which replaces sickled cells with healthy red blood cells, may lead to shorter hospital stays, fewer pain-related hospitalizations and reduced procedure times for SCD patients. All of these together are deemed to positively influence the quality of life for patient with SCD.
- **Comparable complication rates:** Complications related to vascular access were found to be comparable to those of other transfusion methods but require careful management.
- **Under-researched psychosocial aspects:** The publication makes clear that areas such as anxiety, social functioning and emotional well-being need further study, with a greater focus on patient-reported outcomes.

Study Overview and Summary

The review, based on 20 years of data from PubMed and medical guidelines, explores factors affecting quality of life for patients with SCD, including:

- Pain frequency and severity
- Hospitalization frequency and duration
- Vascular access and procedure-related complications
- Psychosocial aspects such as anxiety and social functioning

Automated RBCX led to improvement in clinical outcomes and reduced hospital visits, and further research is needed to better understand its impact on long-term psychosocial health.

The study was published October 22 in *Vox Sanguinis*, the official journal of the International Society of Blood Transfusion.

"We are excited to show that aRBCX appears to be promising in improving quality of life for patients with sickle cell disease," said Koenraad Dierick, Vice President Patient Access, Terumo BCT, and first author on the study. "It is important we continue to demonstrate the value of the therapies we enable for sickle cell disease and beyond, in areas like oncology and neurology as well."

Understanding Sickle Cell Disease

Sickle cell disease is a genetic blood disorder affecting millions globally, primarily those of African, Mediterranean, Middle Eastern, and South Asian descent. It leads to the production of abnormal haemoglobin, causing red blood cells to become crescent-shaped, which blocks blood flow and results in severe pain crises, organ damage and life-threatening complications like acute chest syndrome and stroke [4,5,6,7].

About Terumo Blood and Cell Technologies

Terumo Blood and Cell Technologies (Terumo BCT) is a medical technology company. Our products, software and services enable customers to collect and prepare blood and cells to help treat challenging diseases and conditions. Our employees worldwide believe in the potential of blood and cells to do even more for patients than they do today. This belief inspires our innovation and strengthens our collaboration with customers. Terumo BCT's customers include blood centers, hospitals, therapeutic apheresis clinics, cell collection and processing organizations, researchers, and private medical practices. Our customers are based in over 150 countries across the globe. We have 750+ granted patents, with more than 150 additionally pending. We have global headquarters in Lakewood, Colorado, along with four regional headquarters, seven manufacturing sites and five research and development centers across the globe. Terumo Blood and Cell Technologies is a subsidiary of Terumo Corporation (TSE: 4543), a global leader in medical technology.

About the Spectra Optia™ Apheresis System

The Spectra Optia system is a user-friendly, versatile, industry-leading therapeutic apheresis, cell processing and cell collection platform that allows operators to spend more time focusing on patient care.

Therapeutic apheresis is used widely for a variety of applications. For example, practitioners use red blood cell exchange (RBCX) for sickle cell disease treatment; cell collections for stem cell transplantations and to collect starting material for cell therapies; and therapeutic plasma exchange (TPE) to treat many diseases in both the chronic and acute setting in the neurology, nephrology and hematology spaces.

Product and protocol availability varies by country.

Spectra Optia™ is either a registered trademark or a trademark of Terumo BCT, Inc. in the United States and/or other countries. See [TerumoBCT.com/trademarks](https://www.terumobct.com/trademarks) for details.

[1] Pfizer voluntarily withdraws all lots of sickle cell disease treatment OXBRYTA® (voxelotor) from worldwide markets | Pfizer. Pfizer.com. Published 2024. <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-voluntarily-withdraws-all-lots-sickle-cell-disease>

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